A Brief Outline of the History of Stage Lighting

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On the Internet:

Kliegl Bros.Collector's Society

Lighting Equipment - **Lighting Designers** - **Lighting Educators** - **Time Line: 1880...**

Lighting Equipment

General Illumination: *Candle - Oil Lamp - Gas - Electric*
Specific Illumination: *Lime Light - Arc Light - Electric Spotlight*

General Illumination

General illumination provides a diffuse, shadow less, wash of light over the entire stage space.

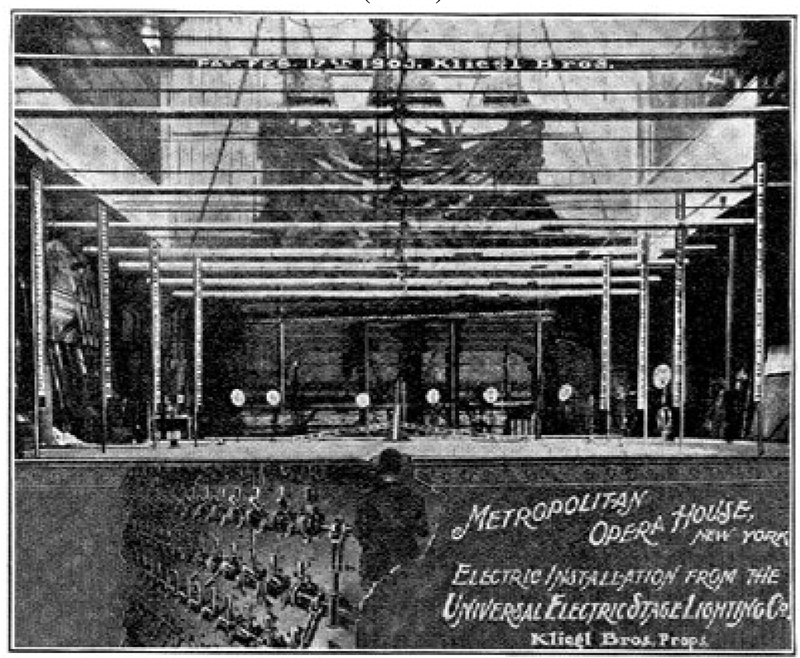
- **Candle**
  - **Italy - 1580-1618:** Candles are introduced in both the academic (*Teatro Olimpico*) and court (*Teatro Farnese*) theatres.
  - **England - 1600s:** Used in the *private* (indoor) *theatres* and Ingo Jones' (1573-1652) *Court Masques* .
  - **1660s:** Reintroduced during the English Restoration.
  - **Mounting Positions:** *Chandeliers* over both the stage and the house, *Front edge* of the stage (footlights), and *"Ladders"* between each pair of side wings.
- **Oil Lamp**
  - **1780s:** Swiss chemist Aime Argand develops the modern oil lamp which soon replaces the candle as the primary light source.
  - **Mounting Positions:** The same as with candles--*Chandeliers*, *Foot lights*, and *Ladders* in the wings.
- **Gas**
  - **1816:** The world's first gas stage-lighting system is installed at the *Chestnut Street Theatre* in Philadelphia.
  - **1817:** Gas-lighting systems are installed in London's two legitimate houses: *Drury Lane* and *Covent Garden*.
  - **1820s:** Gas light is in experimental use in most countries of the Western World.

- **1840s:** Gas lighting is widely adapted and the *gas table* (control board) makes its appearance.
- **1880s:** The incandescent mantle (the *Auer burner*) is introduced producing a much brighter and safer light.
- **Mounting Positions:** *Footlights*, *Border Lights* (between each pair of scenic borders), and *Wing Lights* (between each pair of scenic wings). For example in the late **1850s**, the stage of the *Royal Theatre* in Stockholm was illuminated with 562 burners:
  - 66 in the *Foot Lights*,
  - 8 sets of *Wing Lights* with 9 gas jets each, and
  - 8 *Border Lights* with 44 burners per position.

- **Electric**
  - **1879:** Thomas Edison perfects the first practical incandescent electric lamp.
  - **1881:** London's *Savoy Theatre* installs the world's first electric lighting system-- 824- 16 candle power *lamps* were used to light the stage and an additional 334 lights illuminated the auditorium.
  - **1882:** The first American installation of electric lights is at Boston's *Bijou's Theatre*.
  - **1890s:** By the end of the 19th century most "modern" theatres have switched from gas lights to the much safer electric lights.
  - **1903:** *Kliegl Brothers* installs an electrical lighting system with 96 resistance dimmers (and 20 additional dimmers for house lights) at the *Metropolitan Opera House* in New York City. See the illustration below.
  - **Mounting Positions:** The same as with gas-lighting: *Footlights*, *Borderlights* and *Winglights*. When the new *Stockholm Opera House* opened in **1898**, the stage was illuminated with a three color (white, red, and green) lighting system using 544- 25 candle power lamps per color-- a total of 1632 lights.
    - 40/color in the *Foot Lights*,
    - 9 *Border Lights* with 40 lights/color.
    - 9 sets of *Wing Lights* with 8 lamps/color, and



The Metropolitan Opera House, New York City
(1903)



The above illustration of the "new" electrical system at the **Metropolitan Opera House** is from a 1913 *Kliegl Brothers* catalogue. Note the eight set of *border lights* above. the four sets of *wing lights* on the sides of the stage, the seven *bunch lights* mostly up stage, the *switch board* in the basement and the *electrician* standing in the "prompter's box."

Specific Illumination

Specific illumination, introduced by the *lime light* in the middle of the 19th century, provides a sharp, highly controlled shaft of light. These shafts were used to highlight a small area of the stage, a principle actor, or create the illusion of sunlight (or moonlight). These units were typically placed in the balconies of the auditorium or the galleries on the sides of the stage house. The **1903** electrical installation at New York's *Metropolitan Opera* included 14 *lens boxes* (spotlights), 12 powerful *open faced carbon arc flood lights* and 12- *12-lamp bunch lights* (floodlights) in addition to the four color (white - amber - red - blue) foot lights, proscenium lights, and the eight sets of border lights.

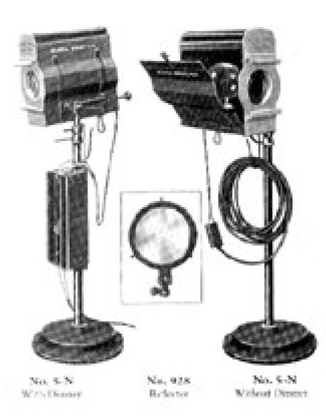
- **Lime Light**
  - **1816:** The *calcium light* (also known as a *limelight* or *Drummond light*) is demonstrated by Thomas Drummond, it's inventor.
  - **1837:** English actor-manager Charles Macready uses a *limelight* at London's *Covent Garden*.
  - **1870s-1880s:** The *limelight* is in general use in "modern" theatres. By the end of the **1880s** as many as eleven units were used in productions at Stockholm's *Royal Theatre* .
  - **1890s:** The *limelight* is beginning to be replaced by the newer and brighter *carbon arc* lamp.
- **Arc Lamp**



Kliegl No 5
5" 25 amp spotlight

- **1807:** Sir Humphry Davy demonstrates a *carbon arc lamp* powered by a 2,000 cell battery. Further development is halted by the lack of a readily available power supply.
- **1832:** Hippolyte Pixii, a French instrument maker, builds an experimental direct current dynamo (generator).
- **1849:** An *arc lamp* is used to create a sunrise effect at the Paris Opera's production of Meyerbeer's *Le Prophete*.
- **1878:** Charles Brush develops a practical dynamo making the *carbon arc lamp* a workable source of light
- **1890s:** The *carbon arc lamp* begins to replace the *calcium light* in the "modern" theatre. The illustration on the left is a *Kliegl No. 5*, a 5" *Lens Box* with a 25 amp (2750 watt) *carbon arc lamp* (1913).
- **1920s:** The newer and safer *incandescent* spotlight, using a modern 1000 watt lamp, begins to replace the *carbon arc* for general theatrical use.
- **1990s:** *Carbon arc lamps* continue to be used as a *follow spot* until the end of the 20th century.

- **Electric Spotlight**



- **1904:** Louis Hartmann builds a small (5" lens) spotlight, a *baby lens*, which used a 50 candle power (approximately 50 watt) lamp for David Belasco's production of *The Music Teacher*.
- **1906:** Hartman uses 4-- 250 watt *baby lenses* (in addition to 31-- 1,5000 watt carbon-arc spots) in Belasco's *The Rose of Ranchero*.
- **1907:** Edison introduces the 500 watt lamp.
- **1911:** Edison introduces a "concentrated filament" lamp for use in a *lens hood* (spotlight).
- **1913:** Kliegl Brothers markets the *No. 60*, a 5" *Baby Spot* built around a 100 candle power lamp. According to the catalogue, the unit provided a "mild ray of light."
- **1913:** The 1000 watt lamp becomes available.
- **1916:** Designer Norman Bel Geddes replaces the *carbon arc lamp* in a *lens box* with a 1000w incandecent lamp.
- **1920s:** 5", 6" and 8" PlanoConvex spotlights (*lens hoods*),

Kliegl No. 5N
5" 1000 watt spotlight

using a 1000 watt lamp, begin replacing the *Lime Light* and *Carbon Arc* lamp.The illustration on the left is of a *Kliegl No. 5N*, a 5" *Lens Box* with a 1000 watt lamp (1926). Note the similarity between the *No 5* and the *No 5N*.

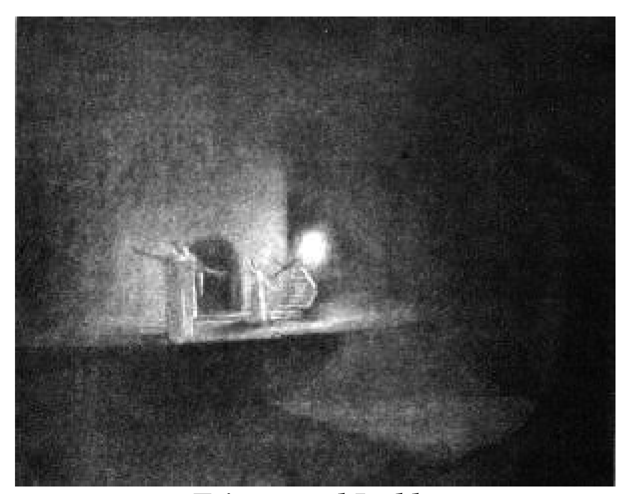
- **1929:** Kliegl Brothers introduces the *Fresnel lens spotlight*.
- **1933s:** Both Kliegl Brothers (*Klieglight*) and Century (*LekoLight*) introduce the *ellipsoidal reflector spotlight*.

Lighting Designers

Adolphia Appia - Normon Bel Geddes - Robert Edmond Jones - Feder
Jean Rosenthal - Tharon Musser - Jules Fisher - Jennifer Tipton - Ken Billington

- **Adolphia Appia** (1862-1928)
  Swiss writer/designer, **Adolph Appia** was one of the leading visionary of the late 19th century. Many believe that the modern concept of lighting design began with his writing.

  In *Die Musik und die Inszenierung (Music and Staging)* (1899) he distinguished three kinds of stage light.
  1. *Helligkeit*, the "diffused light" which illuminated the general acting space,
  2. *Gestaltendes Licht*, the "creative light" which creates the highlights and shadows, revealing the three dimensional world, and
  3. *Painted Light*, the highlight and shadows painted on the scenery by the scenic artist. This static, painted light, was not a part of Appia's vision.



Tristan and Isolde

Appia's sketches indicate a plastic, three dimensional set (steps, columns, ramps, platforms) revealed in directional light. He believed that shifting light should create an inner drama which flows and changes with the texture of the music; that the intensity, color and direction of the light should reflect the changing atmosphere or mood of the work. Perhaps the best illustration of this concept is Appia's *mise-en-scene* for Wagner's *Tristan and Isolde*:

"The terrace in front of Tristan's castle is modeled in light and shadows as a dream vision, in dazzling sunlight when Tistan sinks into unconsciousness, in the blood-red light of sunset fading into twilight and, finally, into a hazy darkness around the lonely, white figure of Isolde." (Bergman. p327-328)

Appia suggests four different lighting looks or cues:
  - starting with (*Q1*) "dazzling sunlight"
  - x-fading into (*Q2*) "blood-red light of sunset"
  - fading into (*Q3*) "twilight" and
  - finally (*Q4*) "hazy darkness."

This was difficult in 1899 when the primary lighting equipment consisted of foot lights, rows of border lights and perhaps a dozen lime lights (or arc lamps).

- **Norman Bel Geddes** (1893-1958)
  Norman Bel Geddes, an American theatrical (and industrial) designer, was born in Adrian, Michigan, briefly attended the Cleveland Institute of Art and the Art Institute of Chicago and was an illustrator in a Detroit advertising agency. In the evenings he built a model theatre complete with a model electric lighting system. He used this model to experiment with "modern" staging. As he writes in his autobiography, *Miracle in the Evening* (1960), these experiments...

  > made it clear that the first row of overhead lamps should be in front of the proscenium instead of behind it. Overhead lamps located at a forty-five-degree angle in front of the curtain line produced modeling in facial features, and life to the eyes, which neither border nor footlights could achieve. They were equally favorable for the figures and clothing of the players and, owing to the concentrated beam, did not strike the scenery. (p.136)

  In 1916, at the age of 23, he left the Detroit advertising world to became the resident designer for Aline Barnsdall's short lived *Little Theatre of Los Angeles*. The company leased the 450 seat theatre at the Egan Dramatic School and Bel Geddes, with the aid of the company's electrician, built a dozen spotlights by installing new 1000 watt lamps in twelve old *carbon arc lamp lens hoods*. According to his autobiography...

  > I placed lights in the auditorium chandeliers, on the sides of the balcony rail, and put a whole line of them behind the proscenium. This was as they had been in my Detroit model. The system replaced the theater stage lighting equipment of low intensity flood lighting from foots, borders, and bunch lamps. The new method provided high intensity individual lamps, which could be focused on any area of the stage floor or scenery, in any color, with a variable amount of light due to individual dimmer control. All were operated from the stage switchboard by a single electrician. This installation, at the *Little Theatre of Los Angeles* in 1916, was the first use of focus lamps as the sole means of lighting the stage. Two years later I made the first installation in New York...Today the system is in universal use. (p. 161)

  Two years later in 1918 he (1) presented a successful lighting demonstration to Broadway producer Winthrop Ames, (2) was contracted to redesign the lighting system, using new 1000 watt spotlights, at the both the *Little Theatre* (now the *Helen Hayes Theatre*) and the *Booth Theatre*, (3) lit, with 18- 1000 watt spotlights, a six show, summer stock season, at the *Pabst Theatre* in Milwaukee, (Sets designed by 31 year old Robert Edmond Jones), and (4) received his first New York design credit.

  Today he is primarily remembered for his massive theatrical designs, especially those for Austrian director: Max Reinhardt (1873-1943). Like most designers of the period, he created both the scenic environment and the lighting design.

  Probably his most famous theatrical creation was the monumental 1921 design for Dante Alagherii's *The Divine Comedy*. The set for this unproduced project was 124' wide and 148' deep. The two massive side towers which framed the *pit* were each 59 feet tall. This imaginative theatrical concept exists today as a notated "script", sketches, a scaled ground plan and front elevation, and a number of photographs taken on an 8' by 8' model.

The Divine Comedy

He designed two massive productions for Max Reinhardt-- *The Miracle* in 1924 and *The Eternal Road* in 1937. For the New York production of Karl Vollmoeller's word-less Biblical pageant: *The Miracle*, Bel Geddes converted the 2000+ seat Century Theatre into a realistic 15th century cathedral. In 1937, for *The Eternal Road*, an Old Testement spectacle by Kurt Weill (score) and Franz Werfel (text), he created, on the huge stage of Oscar Hammerstein's Manhatten Opera House, a winding road which reached from the front edge of the orchestra to the "Promised Paradise." This four hour production which had a cast of hundreds and tons of solidly-built scenery was a critical success but a commercial failure.

In the fall of 1931, Bel Geddes designed and staged a three act, two hour fifteen minute melodramatic interpretation of Shakespeare's *Hamlet*. The production starring Raymond Massy ran for 28 performances at the Broadhurst Theatre. The thirteen scenes were presented on a single architectural set containing a flat neutral playing area, four large raised platforms, a series of steps, four huge towers, and a wrap-around cyc. There were ten hidden entrances into the acting space. Like other Bel Geddes designs, the set broke the proscenium line thrusting the action of the play twenty feet into the auditorium. Locations within the unit set were established through the choice of specific props and the careful focus of the beams of light.

Six years earlier in a French production of *Jeanne D'Arc*, on a very similar architectural set, Bel Geddes used only 3 sections of border lights, 24- 1000 watt 6 inch "focusing" spot lights, 3- 400 watt "baby" spots and 18- 1000 watt cyclorama floods. His autobiography, *Miracle in the Evening* was published in 1960, two years after his death (Garden City, NY: Double Day and Co., Inc). Link to **Norman Bel Geddes'** production credits listed in the *Internet Broadway Database* (www.ibdb.com).

- **Robert Edmond Jones** (1887-1954)

Robert Edmond Jones is considered the father of American scene design. He graduated from Harvard in 1910, traveled to Europe to study the "New StageCraft" and returned to America at the beginning of World War I. He shocked American audiences in 1915 with his simple presentational set for Arthur Hopkin's production of *The Man Who Married a Dumb Wife* (directed by Granville Barker).



Macbeth
The *Banquet Scene* - Act III, Scene iv

Today he is primarily remembered for the staging of Eugene O'Neill's *Desire Under the Elms* (1924) and his vivid dramatic lighting for Arthur Hopkins' three Shakespearean productions: *Richard III* (1920) with John Barrymore, *Macbeth* (1921) with Lionel Barrymore, and *Hamlet* (1922) with John Barrymore. The expressionistic production of *Macbeth* was performed on a bare stage under the constant gaze of three gigantic, moveable, witches masks. The primary acting areas were isolated in carefully focused shafts of light.

For this production of *Macbeth*, Jones used 14- Spotlights on the First Electric, 5- Spotlights on each of the two Torm positions and 4 Baby Spots (focused on the three masks) in the foot light trough. Six lamps were used to light the *Banquet Scene* (III,iv) illustrated above-- two down lights center, one side light from stage left and the three baby spots focused on the masks. Link to **Robert Edmond Jones**' production credits listed in the *Internet Broadway Database* (www.ibdb.com).

- **Abe Feder** (1909-1997)

Abe Feder, who liked to refer to himself as a "worker in light" invented the position of *Lighting Designer*. After studying engineering and theatre technology at the Carnegie Institute of Technology (now Carnegie-Mellon University) in Pittsburgh, PA he went to New York City and began a fifty year career in Light. Over three hundred Broadway shows including Nazimova's productions of *Ghosts* (1935) and *Hedda Gabler* (1936), *I'd Rather be Right* (1937), *Inherit the Wind* (1955), *My Fair Lady* (1956), and *Camelot* (1960) carry the "Lighting by Feder" credit. Between 1935 and 1939 he lit more than 200 projects for the WPA Federal Theatre. Included in this extensive list is T.S. Elliot's *Murder in the Cathedral* (1936), the Living Newspaper's presentations of *Power* (1937) and *One Third of a Nation* (1938) and Orson Welles' famous productions of a "vodoo" *Macbeth* (1936) set on a West Indies island, *Dr. Faustus* (1937) staged on a bare stage surrouinded by black drapes, and *The Cradle Will Rock* (1938) which was locked out of its theatre by the government and forced to give an "outlaw" performance in the Venice Theatre. Link to the FTP Production Notebooks (prompt scripts) for Dr. Faustus and Macbeth.

In addition to design, he wrote the unit on stage lighting in John Gassner's *Producing the Play* (1940). He used his lighting design for Nazimova's production of Ibsen's *Ghosts* (1935) at the Empire Theatre to illustrate typical practice in the mid-1930s. The layout, which he considered "necessary for general lighting of this type of production" included..

- 6-- 500 watt 6" Ellipsoidals on the balcony rail
- 22-- 400 watt 6" Fresnels on the First Pipe,
- 4-- 400 watt 6" Fresnels on the First Torm left and right
- 2-- Sections of 200 watt strip lights on the First Pipe, and,
- 2-- Sections of 60 watt foot lights.

In addition to the general light, Feder used 2-- 250 watt baby spots, 5-- 1000 watt 16" Beam Projectors, 2-- 1000 watt flood lights and 7-- R-40 strip lights to light the backings of Stewart Chaney's set. In contrast he used 78 units (including 7 front-of-house) for Welles' *Macbeth* and 114 (with 22 front-of-house) lamps on *Dr. Faustus*.

Building on his theatrical experience, Feder created a second career as an architectural lighting designer. Structures which carry the Lighting by Feder credit include New York's RCA/GE building in Rockefeller Center, the Empire State building and the United Nations building. In 1993 Abe Feder was the first to be honored as a *USITT Distinguished Lighting Designer*. Link to **Abe Feder**'s production credits listed in the Internet Broadway Database (www.ibdb.com).

- **Jean Rosenthal** (1912-1969)

Today, over thirty years after her death, **Jean Rosenthal** is primarily remembered as the Lighting Designer for some of the great musicals of the nineteen-fifties and sixties and the early comedies of Neil Simon. This list of Broadway shows includes *West Side Story* (1957), *The Sound of Music* (1959), *Barefoot in the Park* (1963), *Fiddler on the Roof* (1964), *Hello, Dolly!* (1964), *The Odd Couple* (1965), *Cabaret* (1966), and *Plaza Suite* (1968).

After briefly studying acting and dance at New York's Neighborhood Playhouse and three years at Yale University she arrived in New York and became a technical assistant with the WPA Federal Theatre, Project 891. John Houseman was the producer, Orson Welles the director, Nat Carson the scene designer, and Abe Feder the lighting designer. When Houseman took a leave of absence in the fall of 1936 to stage Leslie Howard in Shakespeare's *Hamlet* at the Imperial Theatre, he brought Rosenthal along as the assistant stage manager in charge of lighting. When the man from the rental house, who

was to install the electrical system became ill, Rosenthal suddenly became the "worker in light." I assume the lighting system she designed was similar to the layout created by Abe Feder for Welles' Elizabethan productions at the Federal Theatre. This was, perhaps, her earliest *lighting* credit.

Following the outlaw performance of *The Cradle Will Rock*, John Houseman was fired and Orson Welles resigned from the Federal Theatre. These two men joined forces and created the legendary Mercury Theatre. Jean Rosenthal became their production and lighting manager. Although credited as the "Production Manager," it is believed that she designed the lighting for the eight productions staged by the company.

Probably her most influencial work was with the *Martha Graham Dance Company* (1934-1969) and the *New York City Ballet* (1948-1957). Her imprint on the world of dance is huge. Echoing a comment by dance designer Thomas Skelton, "Jeannie Rosenthal invented dance lighting." Link to **Jean Rosenthal**'s production credits listed in the *Internet Broadway Database* (www.ibdb.com).

For more information on Miss Rosenthal, link to my Jean Rosenthal page.

- **Tharon Musser** (1925-)

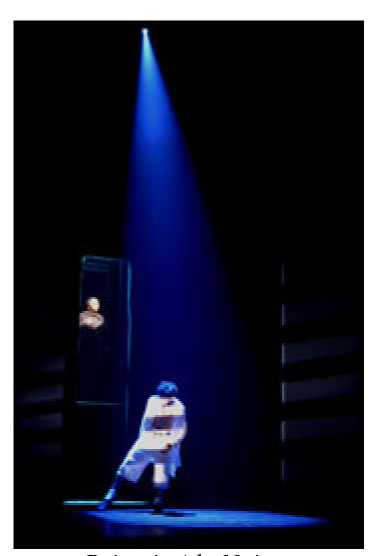
  Tharon Musser is the current *Dean of American Lighting Designers.* She graduated from Berea College in 1946 and like Rosenthal, attended Yale University (MFA: 1950) before moving to New York and becoming an assistant in Rosenthal's studio. Her first Broadway lighting credit was Jose Quintero's staging of Eugene O'Neill's *Long Days Journey into Night* (1956) at the original Helen Hayes Theatre.

  Among the many musicals she designed are two of the longest running Broadway shows: Michael Bennett's *A Chorus Line* (1975 to 1990), which introduced a computer controled lighting system to the Broadway theatre, and Gower Champion's *42nd Street* (1980 to 1988). Her dramatic credits include Neil Simon's autobiographical trilogy: *Brighton Beach Memoirs* (1983), *Beloxi Blues* (1985), and *Broadway Bound* (1987). She has worked with the *Jose Limon Dance Company*, the *American Ballet Theatre*, and the Dallas and Miami Opera Companies.

  In 1972 she won her first *Tony Award* for Michael Bennett's *Follies* which was followed by *Tony's* for Michael Bennett's *A Chorus Line* (1976) and his *Dreamgirls* (1982). She was honored as a *USITT Distinguished Lighting Designer* in 1996. Link to **Tharon Musser**'s production credits listed in the *Internet Broadway Database* (www.ibdb.com).

- **Jules Fisher** (1937-)

  In his 30 year career, Jules Fisher, a graduate of Carnegie Institute of Technology (now Carnegie-Mellon) (1960), has lit over 150 Broadway and off-Broadway shows, as well as film, dance, opera, television, and rock-and-roll concert tours. His first Broadway credit was *Spoon River Anthology* which opened at the Booth Theatre in September 1963. He has received 16 Tony nominations and has won 7 Tony awards, a record in the lighting category, for *Pippin* (1973), *Ulysses in Nighttown* (1974), *Dancin'* (1978), *Grand Hotel* (1990), *The Will Rogers Follies* (1991), *Jelly's Last Jam* (1992), and (Co-designed with Peggy Eisenhauer) *Bring in 'da Noise, Bring in 'da Funk* (1996). In addition to his seven Tony awards, Fisher has been honored twice, in 1987 and again in 1995, by the *USITT*.


Bring in 'da Noise, Bring in 'da Funk (1996)

He designed the lighting for Kevin Kline's "Great Performances" production of *Hamlet* (1990) for PBS, and has lit productions of *Porgy and Bess* and *A Midsummer Night's Dream* for the New York City Opera company.

He was production supervisor (and lighting designer) for tours of the Rolling Stones (for which he won a 1976 *IES Lumen Award*), KISS, David Bowie, and the rock concert version of *The Who's Tommy*.

He has designed the lighting for the Radio City Music Hall presentation of *The Teenage Mutant Ninja Turtles*, the *1977 Academy Awards Show*, Quincy Jones' *Reunion on the Mall* concert for President Bill Clinton's inaugural, *America's Millennium Live All-Star Concert New Year's Eve 2000* and the concert segments of Barbra Streisand's 1976 film: *A Star is Born* and the theatre segments of Rob Marshall's *Chicago: The Musical* (2002).

In 1993 he began the *Broadway Lighting Master Class*, a four day seminar conducted by major New York lighting designers. Link to **Jules Fisher**'s production credits listed in the *Internet Broadway Database* (www.ibdb.com).

- **Jennifer Tipton** (1937-)



Jennifer Tipton (1937-), the principal lighting designer for the *Paul Taylor Dance Company*, was born in Columbus, Ohio, the daughter of two science professors. She developed her love of dance and theatre long before college. During the summer of 1953, between her junior and senior year in high school, she studied at the *American Dance Festival* at Connecticut College in New London and was permitted by her parents, to travel alone to New York, during the Christmas break of her senior year, to participate in Martha Graham's "Christmas Course." Although she had been dancing since the age of twelve, her goal at the end of high school was to become an astrophysicist- to become the "first woman in space." She began her studies at Cornell University in Ithaca, New York, with a major in physics and graduated in 1958 with a degree in English.

After graduation she moved to New York to continue her studies in dance and began performing with the *Merry-Go-Rounders*, a touring company which performed primarily for children. She became the troupe's "rehearsal mistress" (touring director) which required her to watch the performance from the front. She began to look at the larger picture, and that larger picture was *determined and controlled by the light.* "I fell in love with light," she told Linda Winer in an October 2003 interview, "and have been in love with it ever since." The following summer she returned to the *American Dance Festival* and took a class in dance lighting from Thomas Skelton. She became his assistant, and as the stage manager, was soon recreating his designs on the road for the *Paul Taylor Dance Company*. Her first lighting design credit for Paul Taylor was *Orbs* (1966), a two-act dance set to the music of Beethoven. Her first Broadway lighting credit was for a production of *Our Town* at the ANTA Theatre (now the Virginia Theatre) in 1969.

It was her design for Jerome Robbins' *Celebrations: The Art of the Pas de Deux* (1973) at the Spoleto Festival (Italy), which brought her to the attention of the theatrical world. By the mid-1970s her work was regularly being seen on the off-Broadway stages of New York's Public Theatre, the home of Joseph Papp's *New York Shakespeare Festival* as well as the stages of numerous Broadway houses. By the 1980s she was regarded as one of dance's most versatile

lighting designers. Her achievements range from the "forceful, sculpted effects" in Twyla Tharp's *Fait Accompli* (1983) to the "subtle, shimmering vision" for Jerome Robbins' *In Memory Of...* (1985). Her work in opera includes productions of Wagner's *Parsifal* at the Houston Grand Opera, *Tannhauser* for the Chicago Light Opera and Martin David Levy's *Mourning Becomes Electra* at the Seattle Opera.

Tipton's lighting has won a Drama Desk Award for Ntosake Shange's *For Colored Girls Who Have Considered Suicide / When the Rainbow is Enuf* (1976); a Joseph Jefferson Award for John Guare's *The Landscape of the Body* (1976); a Drama Desk and Tony Award for *The Cherry Orchard* (1977); a second Tony Award for *Jerome Robbin's Broadway* (1989) and an Obie for Sustained Excellence at the New York Shakespeare Festival (1979).

Beginning in 1981 Tipton has been a professor of design at the Yale School of Drama where she advises her graduate lighting students to "use what you have, ...use it well and imaginatively."

According to Chris Davis, the Associate Lighting Supervisor at *Queens Theatre In The Park* in Queens, New York-- "Jennifer Tipton is primarily a dance LD. She tends to work within a confined pallette, no color and a little color correction in either direction. Her work is all about angle, shape, and intensity, and she's a master at it." Link to **Jennifer Tipton**'s production credits listed in the *Internet Broadway Database* (www.ibdb.com).

- **Ken Billington** (1946-)



Chicago (1997)

Ken Billington is probably the most successful "young" lighting designer. After graduating from high school, he went directly to New York City where he studied at Lester Polakov's *Studio and Forum of Stage Design* and "apprenticed" with Peggy Clark and Tharon Musser. As he has said, "If I'm a good designer today it's because I learned so much from Tharon -- I always say I went to Musser U." He began as a "go for" and worked his way up to "assistant." He observed Tharon at work and used her techniques in small off-Broadway venues. After receiving his first New York lighting credit, an off-Broadway production: *Fortune and Men's Eyes* and supervising several non-union designers in Broadway houses, he got his big chance. In the fall of 1973 he received (what I believe was) his first Broadway credit for the three show season of the *New Pheonix Repertory Theatre* at the Ethel Barrymore Theatre. One of the three productions, a revival of Dürrenmatt's *The Visit*, was nominated for a Tony.

Billington has designed over 75 Broadway shows, 50 off-Broadway productions, 60 operas for companies like the Houston Grand Opera, the Chicago Lyric Opera, the New York City Opera, the Christmas and Easter Show for Radio City Music Hall and Las Vegas acts for performers like Ann-Margaret, Shirley MacLaine and Liberace. He has developed a reputation for lighting big production: *Sweeny Todd* (1979), Discover Card's *Stars on Ice*, *Riverdance*, and *Footloose* (1998); and especially star driven revivals of classic American musicals: *My Fair Lady* (1981) with Rex Harrison, *Fiddler on the Roof* (1990) with Topol. and *Hello, Dolly!* (1995) with Carol Channing,

In 1997 he won the *Tony* for the Broadway revival of Bob Fosse's *Chicago* and was honored as a *USITT Distinguished Lighting Designer* in 1996. He is presently an Adjunct Professor of Drama at Carnegie-Mellon University. Link to **Ken Billington**'s production credits listed in

the *Internet Broadway Database* (www.ibdb.com).

Lighting Educators

Stanley McCandless -- Theodore Fuchs

- **Stanley McCandless** (1897-1967)
  Stanley McCandless, architect, designer, author, illumination consultant and lighting professor at Yale University from 1925 to 1964, was probably the most influencial teacher in the field of theatrical lighting.

  After graduating from the University of Wisconsin in 1920, *Mac* received a Master of Arts degree in architecture from Harvard University (1923). He worked several years as an architect before becoming a lighting consultant in the late 1920s. He used an ellipsoidal reflector in the house light fixtures he designed for the Center Theatre in New York's Radio City (1932). These units were the prototype for the ellipsoidal reflector spotlight he created for Ed Kook and Chuck Levy's Century Lighting-- The *Leko*.

  In 1925, he and George Pierce Baker (1866-1935), who he had met at Harvard, created Yale University's School of Drama. The following year, 1926, he offered the first academic class in Stage Lighting. During his 39 year tenure at Yale he would teach some of America's most important lighting designers including both Jean Rosenthal and Tharon Musser. *A Glossary of Stage Lighting* was published in 1926, this was followed by *A Syllabus of Stage Lighting*, first published in 1927, and *A Method of Lighting the Stage* (1932). McCandless' *method* is still the basic foundation of modern stage lighting.

  He retired from teaching in 1964 and died three years later at the age of 70.

- **Theodore Fuchs** (1904-1995)
  Theodore Fuchs, an author, teacher, and theatre consultant, graduated from high school at the age of 15 and had earned a bachelor's degree in both Chemical and Electrical Engineering by the time he was 19. According to one source, he was a lighting design student of Stanley McCandless, before joining the staff of Northwestern University in Evanston, Illinois. He retired from Northwestern, after 42 years of service, at the end of the 1969-1970 academic year.

  His most significant work, *Stage Lighting*, was published by Little Brown and Company in 1929, making it one of the earliest theatrical lighting texts. Ten years later in 1939, Samuel French published *Home-Built Lighting Equipment for the Small Stage*, an expansion of Chapter Seven from his 1929 work. In the early 1950s he self published, through Northwestern University, several "books" on suggested layouts of stage lighting equipment for the school and college auditorium.

  One of his major contributions as a consultant, especially in educational theatres in the midwest, was the *Plaster Cyc* -- replacing the traditional *Sky Drop* with a permanent, off-white, sand-blasted plastered rear wall.

  He was presented the *USITT Award* for his "lifetime contribution to the performing arts community" at the 1980 Kansas City Conference. His professional papers have been archived in the *Theodore Fuchs Collection on Theatre Technology* in the Lee Library on campus of Brigham Young University in Provo, Utah.

Time Line: 1880...

The first reference to a designer is **high lighted**.

- 1879- Edison "invents" the incandescent lamp
  1880's
- 1881- London's *Savoy Theatre* installs the first theatrical electrical lighting system

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1890's
- 1899- **Appia's** *Music and Staging* is published

1900's
- 1903- **Kliegl Brothers** installs a 96 dimmer stage lighting system at the *Metropolitan Opera House*
- 1904- **Louis Hartmann** uses a "baby len" in Belasco's *The Music Teacher*

1910's
- 1915-**Robert Edmond Jones** designs *The Man Who Married a Dumb Wife*
- 1916- **Norman Bel Geddes** builds a 1000 watt Spotlight from a carbon arc lens box.
- 1916- Bel Geddes lights the Little Theatre of Los Angles entirely with 1000 watt Spotlights.
- 1918- Jones and Bel Geddes work together at the *Pabst Theatre* in Milwaukee

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1920's
- 1921- Robert Edmond Jones designs *Macbeth*
- 1921- Norman BelGeddes designs *The Divine Comedy*
- 1924- Norman BelGeddes designs *The Miracle*
- 1925- **Stanley McCandless** offers the first *Stage Lighting* course at Yale University
- 1929- **Theodore Fuchs**' *Stage Lighting* is published
- 1929- Kliegl Brothers introduces the Fresnel Lens spotlight

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1930's
- 1932- Stanley McCandless' *A Method of Lighting the Stage* is published
- 1933- Century (**Leko**) and Kliegl (**Klieglight**) introduce the Ellipsoidal Reflector Spotlight
- 1935- **Abe Feder** designs the lighting for *Ghosts*
- 1936- **Jean Rosenthal** designs the lighting for *Hamlet* staring Leslie Howard
- 1937- Norman BelGeddes designs *The Eternal Road*
- 1937- Abe Feder designs the lighting for the Federal Theatre's production of *Dr. Faustus*

1940's
- 1940 - Abe Feder's approach to lighting is published in Gassner's *Producing the Play*
- 1943- Jean Rosenthal designs the lighting for *Richard III*

1950's
- 1956- **Tharon Musser** designs the lighting for *Long Day's Journey into Night*
- 1956- Abe Feder designs the lighting for *My Fair Lady*
- 1957- Jean Rosenthal designs the lighting for *West Side Story*

1960's
- 1960- Abe Feder designs the lighting for *Camelot*
- 1963- **Jules Fisher** designs the lighting for *Spoon River Anthology*
- 1964- Jean Rosenthal designs the lighting for *Hello, Dolly!*
- 1966- **Jennifer Tipton** designs the lighting for Paul Taylor's *Orbs*

1970's

- 1972- Tharon Musser wins a *Tony* for her lighting design for *Follies*
- 1973- **Ken Billington** designs the lighting for *The Visit*
- 1973- Jules Fisher wins a *Tony* for his lighting design for *Pippin*
- 1975- Tharon Musser wins a *Tony* for her lighting design for *Chorus Line*
- 1977- Jennifer Tipton wins a *Tony* for her lighting design for *The Cherry Orchard*
- 1979- Ken Billington designs the lighting for *Sweeny Todd*

1980's

- 1982- Tharon Musser wins a *Tony* for her lighting design for *Dreamgirls*
- 1989- Jennifer Tipton wins a *Tony* for her lighting design for *Jerome Robbin's Broadway*

1990's

- 1997- Ken Billington wins a *Tony* for his lighting design for *Chicago*

Stage Lighting Home Page

E-mail questions and comments to Larry Wild at wildl@northern.edu.
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